



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAY 23 2008

REPLY TO THE ATTENTION OF:

WC-15J

Mr. Allen Poole, P.E.
Director
Department of Public Utilities
400 South Eagle Street
Naperville, Illinois 60540

To: Jim H.
Mark S.
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alla
5-27-08

Dear Mr. Poole:

Enclosed is a copy of an audit inspection report prepared as a result of an U.S. Environmental Protection Agency inspection at your municipality on September 25-26, 2007. The inspection was conducted by Mr. Gerald R. Golubski, environmental engineer.

The inspector noted that the city had nine basement backups which occurred on October 3, 2006. These backups were due to a 3.2 inch precipitation event. As noted in further correspondence and telephone conversations with the EPA inspector, the city has implemented a sanitary sewer system lining program in the problem area. We are pleased that no other basement backups have occurred within the last year. In summary, EPA has no further concerns related to the operation of your sanitary sewer system. Thank you for your prompt and thorough assistance in conducting this inspection.

If you have any questions regarding this inspection report, please feel free to contact Mr. Golubski at 312-353-2256.

Sincerely,

Sally K. Swanson

Sally K. Swanson, Chief
Water Enforcement and Compliance Assurance
Branch

Enclosure

cc: Jay Patel, Illinois EPA

United States Environmental Protection Agency
Region 5

Purpose: Sanitary Sewer Overflow Inspection

Facility: City of Naperville, Illinois
3713 Plainfield Road
Naperville, Illinois 60566

U.S. Representative:

Gerald R. Golubski, Environmental Engineer, 312-353-2256

Facility Representatives:

Allan L. Poole, P.E., Director, Department of Public Works 630-420-6131
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Nita Schaefer, Engineering Technician, 630-305-5994

Report Prepared by: Gerald R. Golubski

General Information and Background

The city of Naperville's sanitary wastewater district covers approximately 46 square miles within the city and an additional four square miles of adjoining Warrenville, Illinois. The population served includes 142,055 Naperville residents and approximately 13,000 Warrenville area residents.

The topography of Naperville is relatively flat but the general surface drainage is to the south. The sanitary district operates seventeen minor lift stations and four major lift stations. According to engineering drawings of the collection system, the district operates approximately 511 miles of sanitary lines (6 inches and greater). The collection system is mostly built from the 1970's. The average age of the sewer line within the collection system has been calculated to be 25 years old.

Management Information

The average daily flow of sanitary effluent through the district's collection system in 2006 was 22.34 MGD. The minimum daily flow was 17.7 MGD and the daily maximum was 47.53 MGD. This represents a ratio of 2.13 times the minimal flow in dry

weather versus wet weather. In 2007, the difference ratio was reduced to 2.00 (as of August 2007). Overall, the average per capita flow in the Naperville Sanitary Collection System averages 135 gallons per day (2007). Influent BOD is typical for a mostly residential community of only 141 mg/l.

SSO Events

There have been no reported SSO events in recent years to surface waters within the community. However, there have been on ten separate occasions backups in homeowner basements, due to laterals being plugged. In addition there were nine manhole surcharges last year. These events were mostly traced to root intrusions at the laterals on homeowner properties.

Sewer Assessment Plan

In an effort to reduce further tree root intrusions, the city operates a well established maintenance program to clean sewers and manholes on a routine basis. TV videotaping is performed regularly. Each year the city establishes goals as to achieving sewer maintenance cleaning and televising. At the present time, the city has nine field personnel responsible for monitoring the sanitary collection system.

Communication and Customer Care Program

The city distributes brochures regarding clean-up procedures following back-up problems within homeowners basements as well as identifying other sewer related problems. The program called "city works" is a computer designed tracking system which quickly assesses homeowners problems and then measures the timely resolution by city crews. This program is useful in that it tracks known problem areas which leads to a more comprehensive understanding of the sanitary collection system. Such information is useful in planning future preventive maintenance such as timely sewer cleaning operations. It is also useful in selecting which areas of the sanitary collection area that needs to be televised.

Management Information System

It appears that the city of Naperville has a well established management information system. All sewer cleaning operations are tracked. All lift station repairs and maintenance work is processed through a series of work orders. Records are kept both by computer and by paper. Records go back to 1982. Field records are transcribed into the computer tracking system on a monthly basis.

Legal Authority

The city of Naperville has an existing contractual relationship with neighboring Warenville. However, that city has its own separate sewer use ordinance.

A copy of the city of Naperville's sewer use and connection ordinance is attached to this inspection report. The ordinance contains definitions of prohibited discharges, discharge limits, and penalties for violators.

In respect to contributing flows from restaurants with grease discharges, the city routinely; i.e., weekly services the downtown district where most of the city's restaurants are located. Plumbing inspections from either DuPage or Will County routinely check for compliance with the installation of grease traps/pits from any new restaurant.

Water Quality Monitoring

The DuPage River runs through the Naperville city metropolitan area. Both the upstream and downstream segments of the river adjacent to Naperville are monitored for dissolved oxygen, ammonia, and phosphorus.

Since there have not been any SSO overflows in recent years, the city has not taken any water quality samples along the river segment in respect to SSO events.

Hydrogen Sulfide Monitoring and Control

The city has not had any reported hydrogen sulfide problems. The city does perform routine maintenance and inspections at their numerous lift stations within the sanitary collection system. Activated carbon units were installed at lift stations when they were located near residential homes or businesses. These units eliminate odors.

During the course of this EPA inspection, no hydrogen sulfide odors were detected at the half dozen lift stations examined.

Emergency Procedures and Response

The city of Naperville utilizes a "Scada" emergency monitoring system. This system is linked to the local police and fire departments. In addition, the city has a detailed "call-out" list of city personnel in the event of an emergency. City officials carry cell phones for prompt attention to emergency situations.

In the event of an SSO, the city has established a procedure to contact local health officials and the local regulatory agencies such as the Illinois EPA.

System Mapping

The city maintains both computerized records as well as detailed drawings of its entire sanitary collection system. Maps are detailed to the "Arcmap" level of accuracy, i.e., survey grade accuracy.

In addition, field crews have lap top computers to check field accuracy and provide an accurate source of information while completing inspections, repairs, or cleaning operations.

Each manhole is identified by basin location. Each individual homeowner's lot is drawn with exacting locations of sewer lines and manhole locations.

Pump Stations

The city operates 21 pumping stations. Each pumping station has back-up auxiliary natural gas or diesel fuel generators to provide electricity as needed.

During the course of this EPA inspection, several lift stations were examined. Each station appeared to be neat and orderly. No open electrical boxes or exposed wiring were evident. Floors were especially clean.

There was no evidence of leaks along pump seals or drive shafts. All areas of the lift station had ample lighting, safety rails, and safety chains as warranted.

The general maintenance at the pump stations are considered excellent.

Pump Station Emergencies

At the time of this EPA inspection, all lift stations examined appeared to be working properly. Field crews visit the stations daily. There was no evidence of flooding; i.e., staining along the walls. No reported failures of pump stations have been experienced in recent years. All lift stations are wired with the "SCADA" system. Plant operators monitor pump activations and water levels from the control room located within Naperville's POTW.

Recordkeeping

Recordkeeping practices are considered excellent. All records requested during the two day inspection were made readily available for review. Records included copies of the city's emergency plans, sewer use ordinance, sewer "atlas", sewer, pump station, and grease trap inspection records, sanitary sewer preventive maintenance logs, list of chronic problem areas, citizen complaints, sewer backups, cleaning schedules, and equipment maintenance records.

Attached is a completed EPA Form 3560. Also attached is a copy of the audit inspection checklist.

Finally, a printed set of all photographs taken during the inspection is attached.

Attachment

Naperville, Illinois
September 27, 2007

Photographic Log

1. SSO storm water basin
2. SSO storm water basin
3. SSO storm water basin
4. SSO storm water basin
5. Sanitary sewer plugs
6. Odor control unit
7. Northwest pump station
8. Northwest pump station
9. New pump station standby electrical generator
10. New pump station – electrical control panel
11. Pump hours meter
12. Electrical conduit at pump station
13. Odor control unit
14. SSO storm water basin
15. SSO storm water basin
16. SSO storm water basin
17. SSO storm water basin
18. SSO storm water basin
19. Cell phone tower
20. Former Naperville wastewater treatment plant
21. Former Naperville wastewater treatment plant
22. Former Naperville wastewater treatment plant
23. Lift station control panel
24. Lift station safety chains
25. Southwest pump station
26. Southwest pump station
27. Southwest pump station
28. Southwest pump station
29. Control panel southwest pump station
30. Naperville – Springbrook WRC
31. POTW clarifier
32. POTW clarifier
33. POTW screw pumps
34. POTW aeration basins
35. Aeration basins
36. POTW clarifier
37. POTW clarifier
38. POTW clarifier under repair
39. POTW clarifier under repair
40. POTW clarifier under repair

- 41. Pump
- 42. POTW screen room
- 43. POTW screen room
- 44. POTW screen room
- 45. POTW screen room
- 46. Biosolids storage shed
- 47. Biosolids storage shed
- 48. Mount for dewatering biosolids
- 49. Dewatering biosolids screen
- 50. Biosolids in storage
- 51. Biosolids in storage
- 52. Final outfall at Naperville – Springbrook POTW
- 53. Final outfall at Naperville – Springbrook POTW
- 54. Final effluent sampling bottle
- 55. List of licensed operators at POTW
- 56. List of licensed operators at POTW



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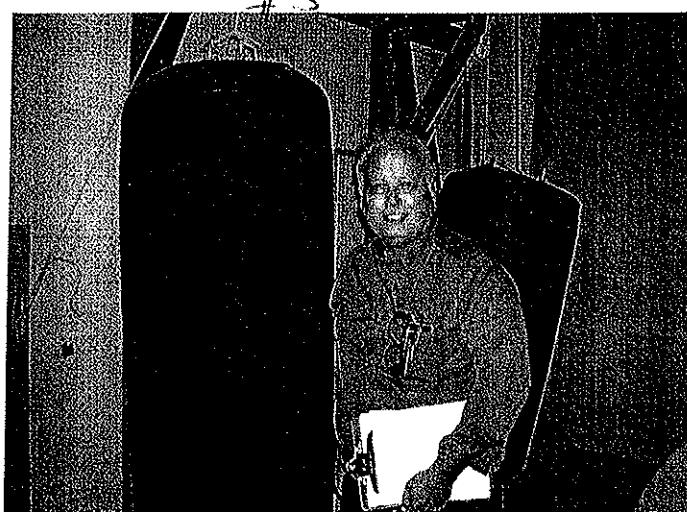
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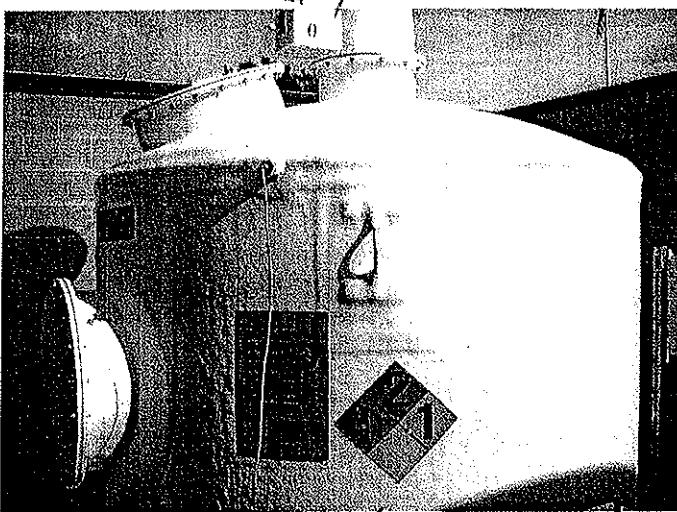
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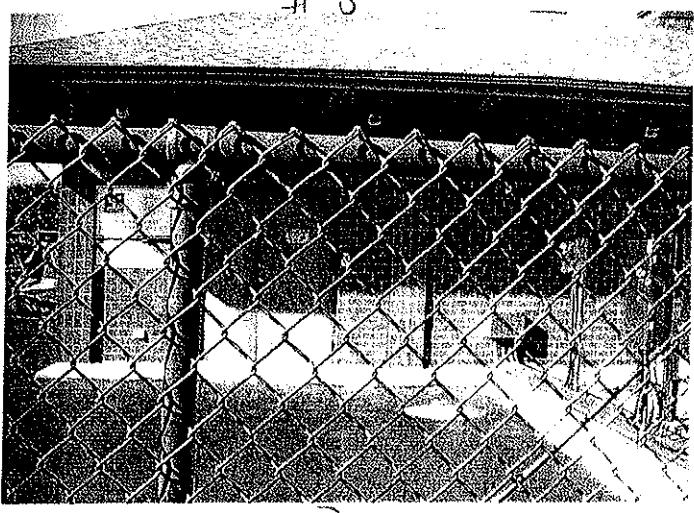
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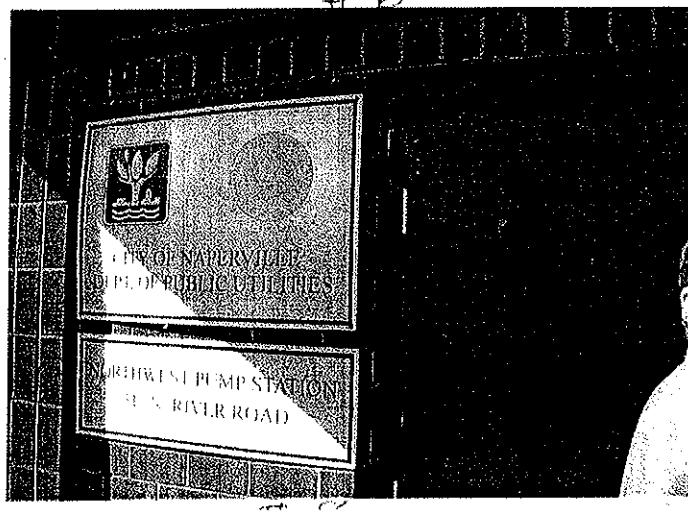
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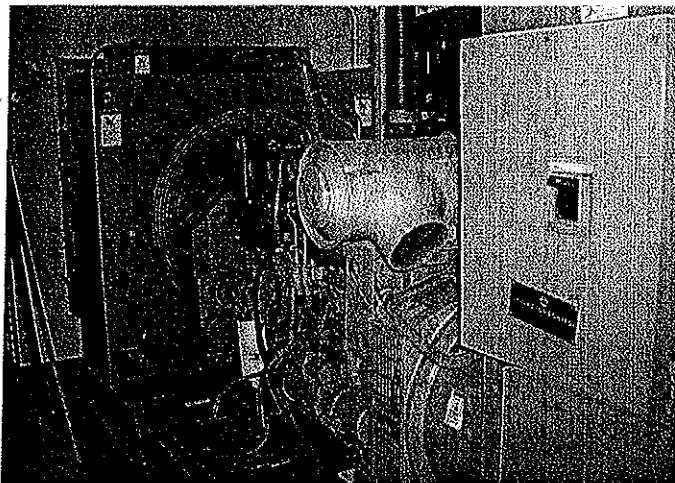
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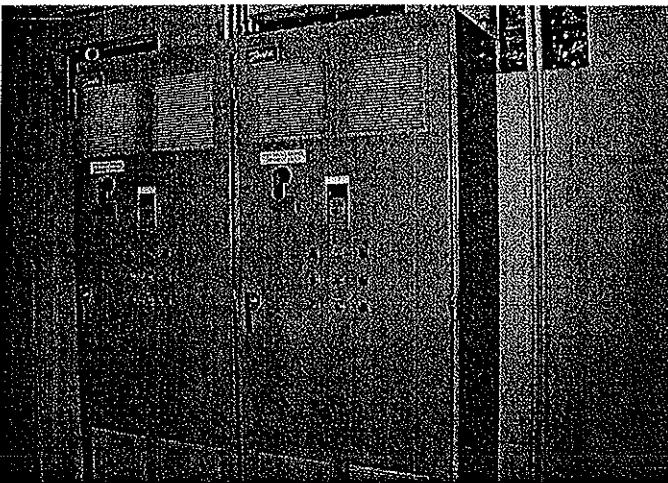
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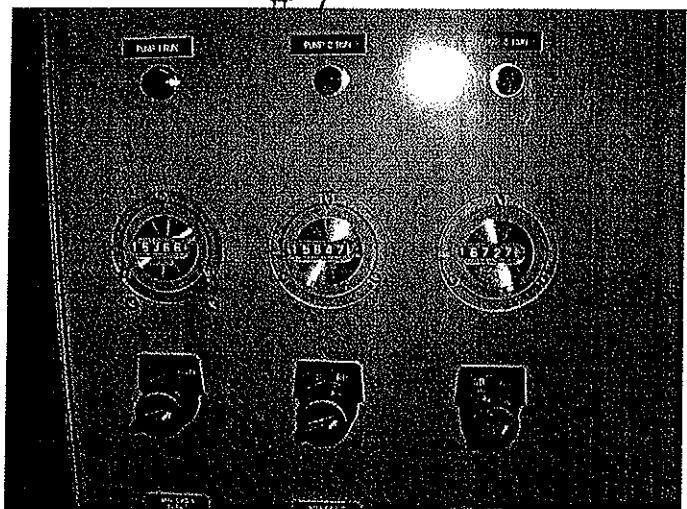
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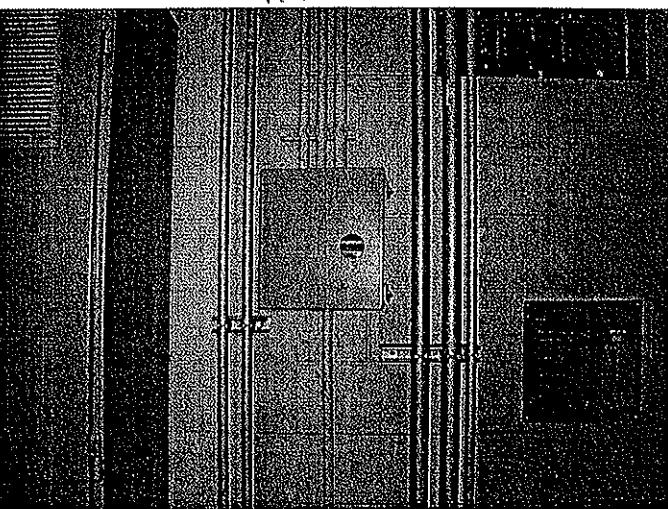
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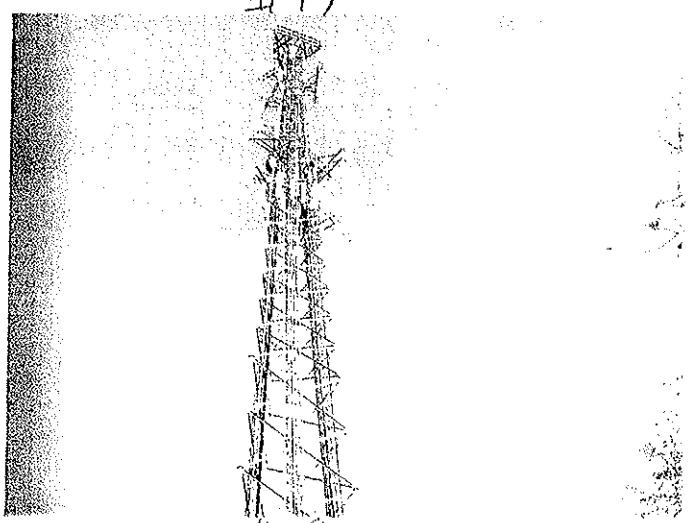
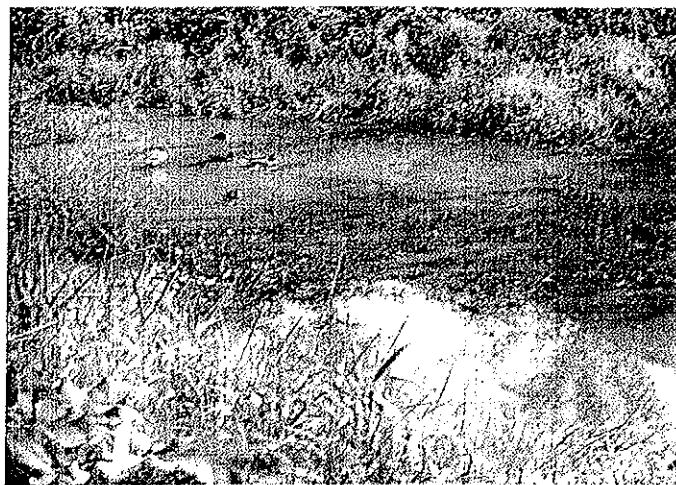
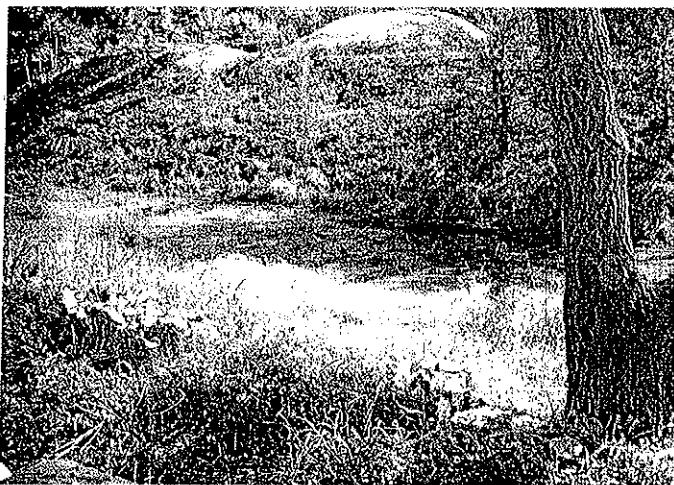


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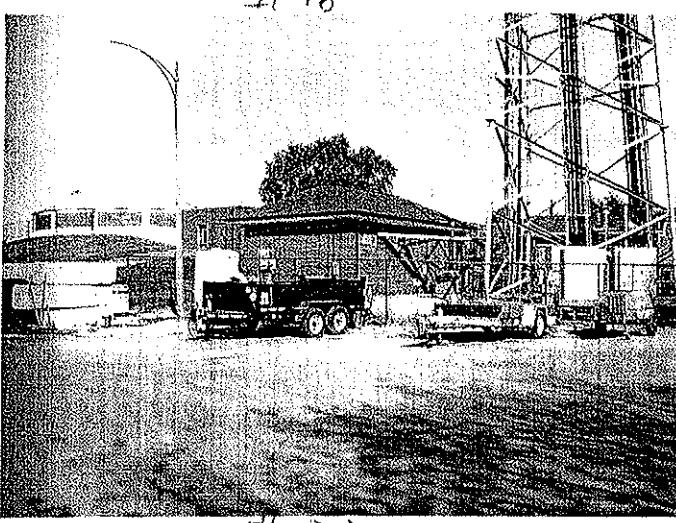


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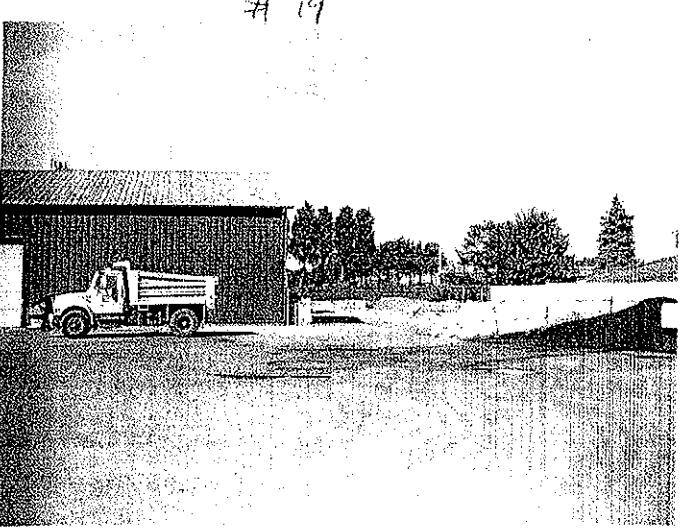




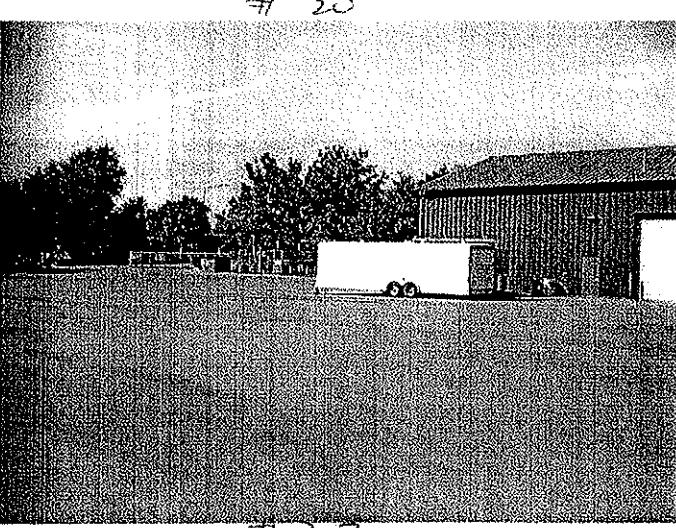
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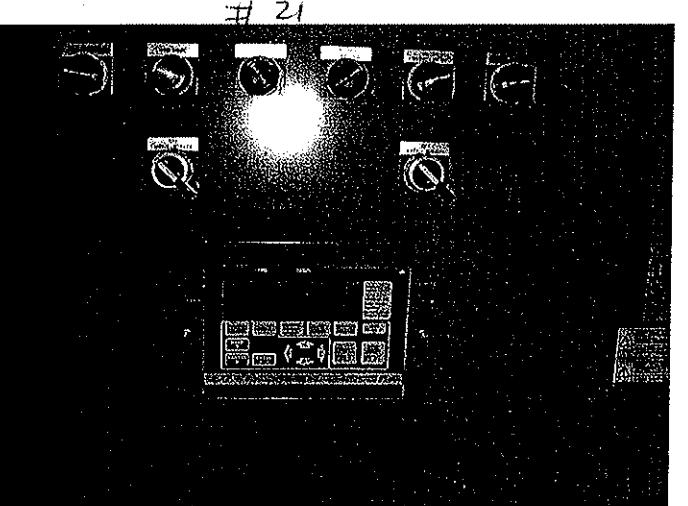
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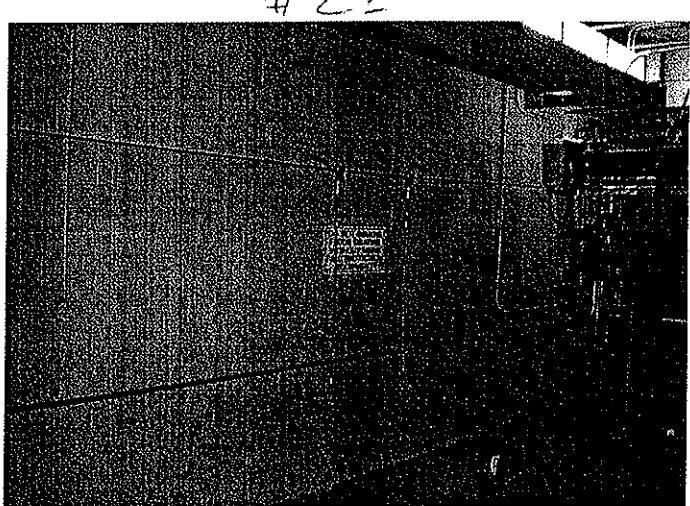
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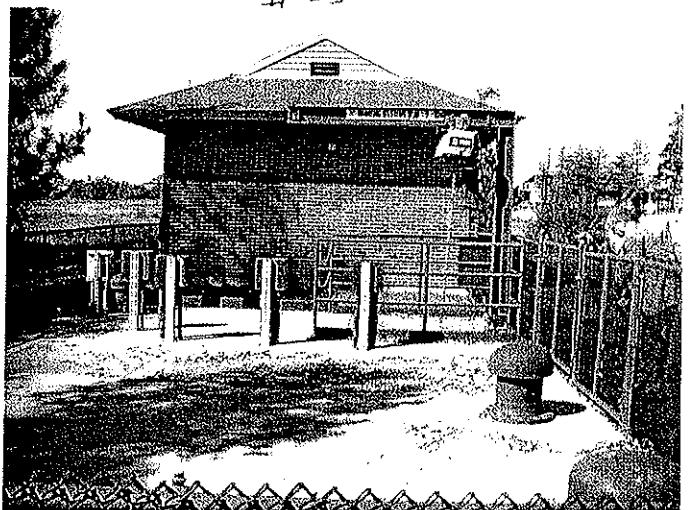




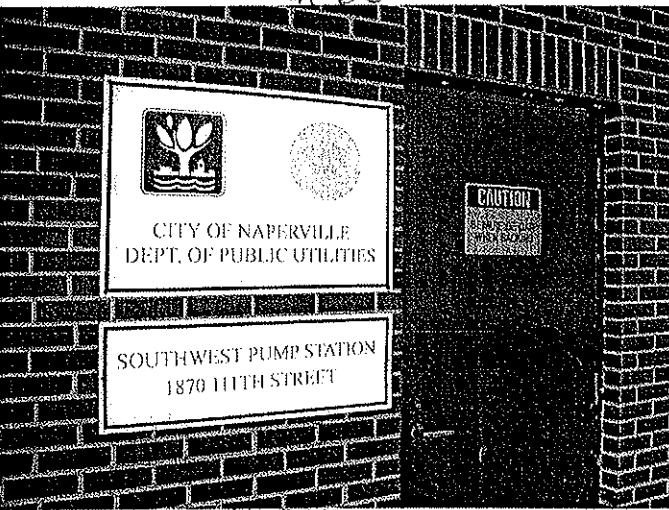
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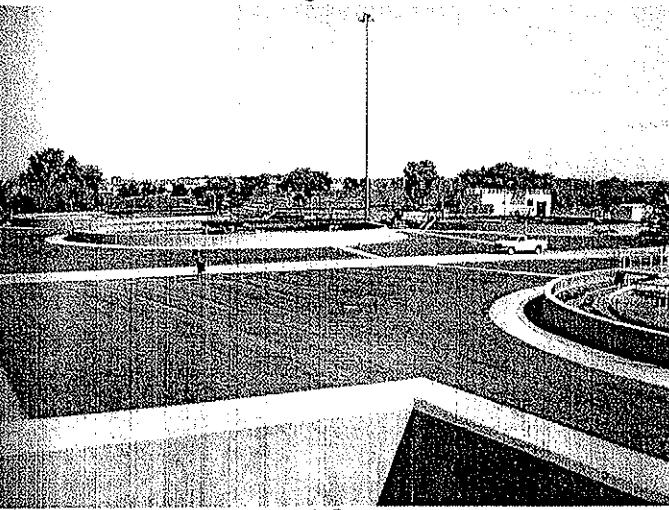
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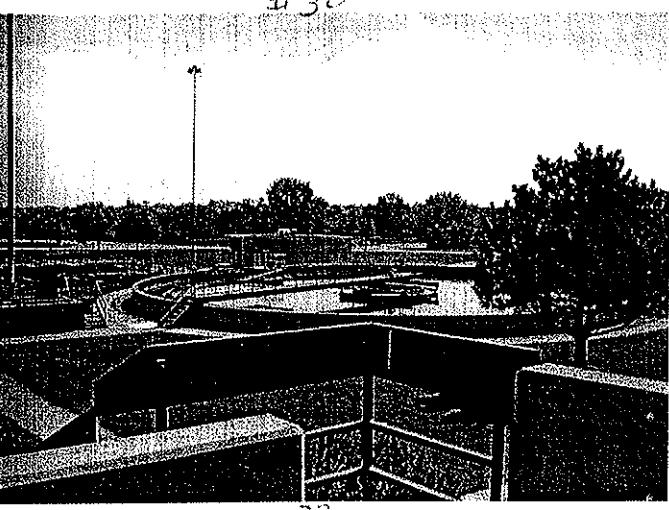
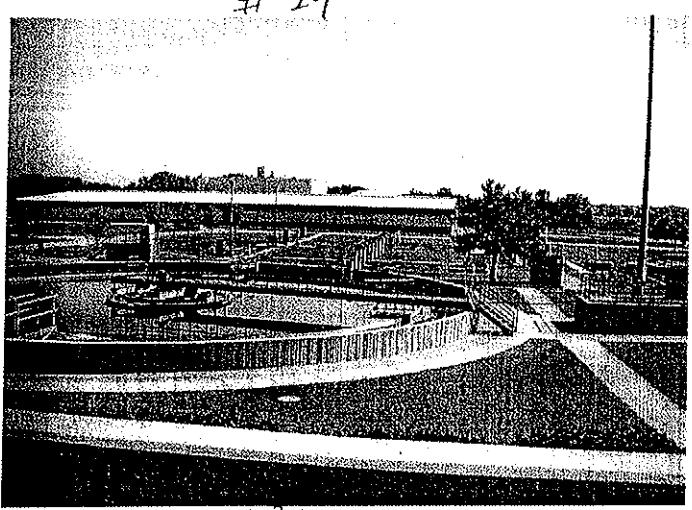
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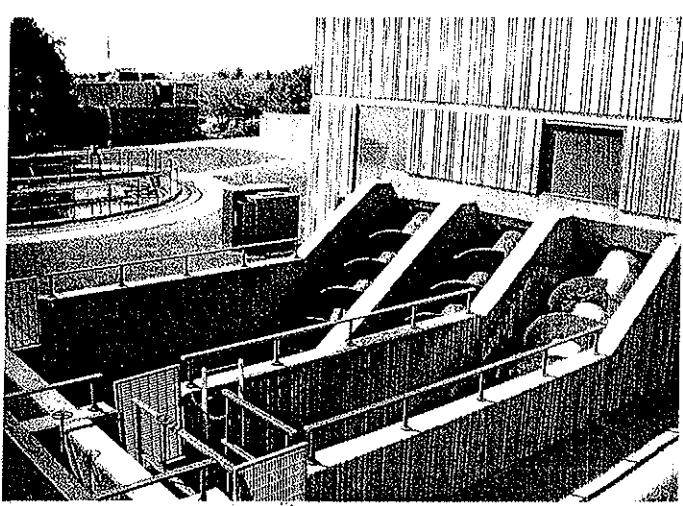


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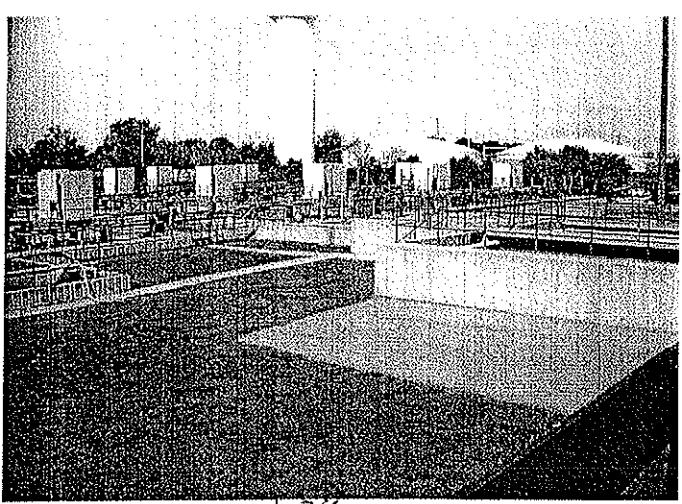


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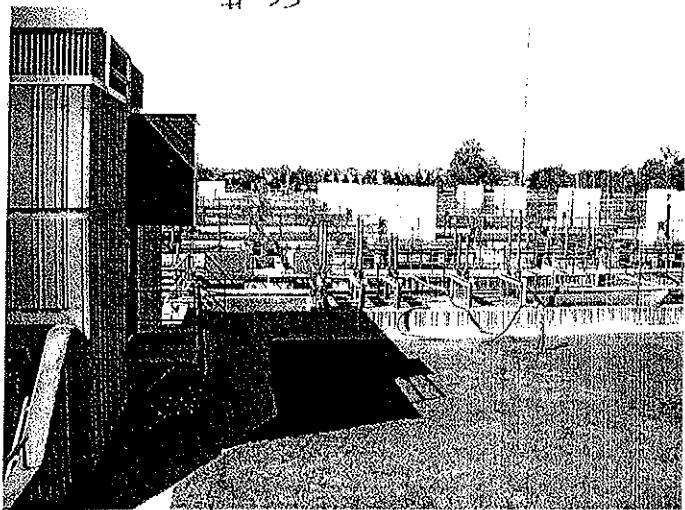




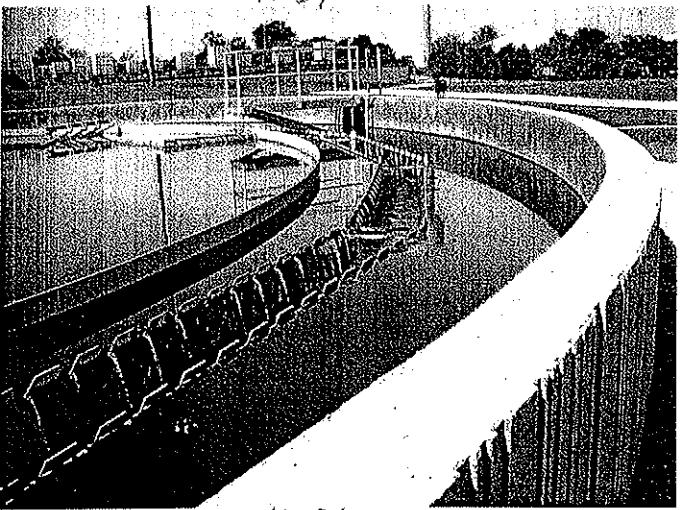
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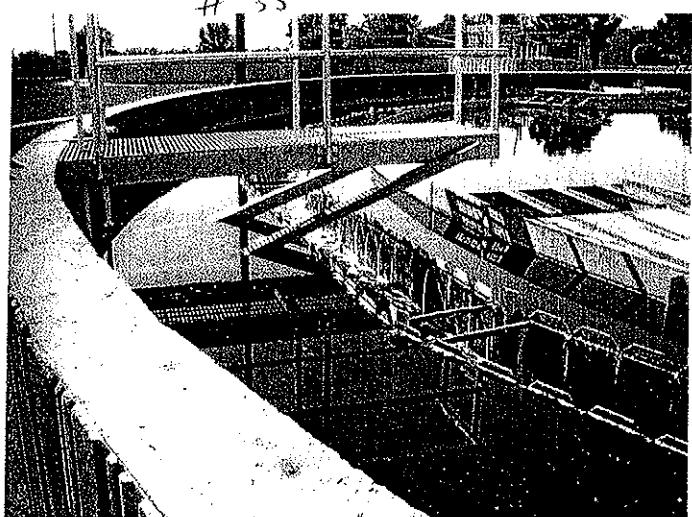
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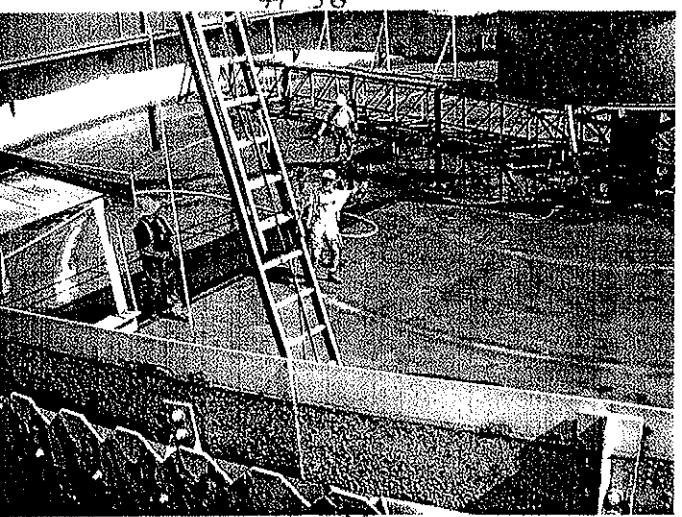
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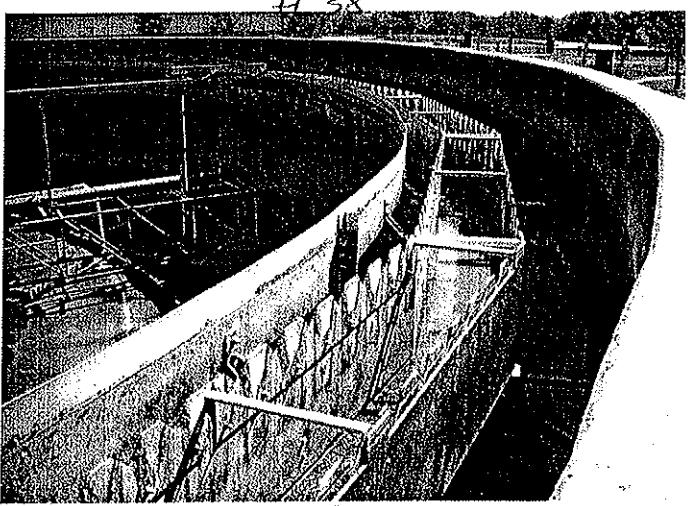
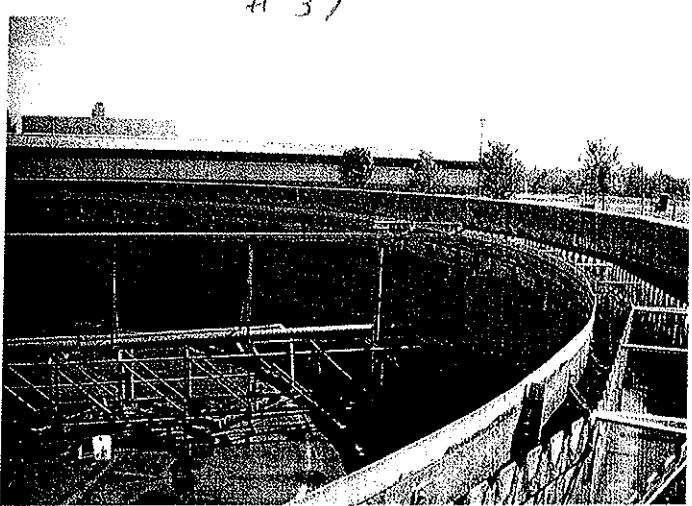
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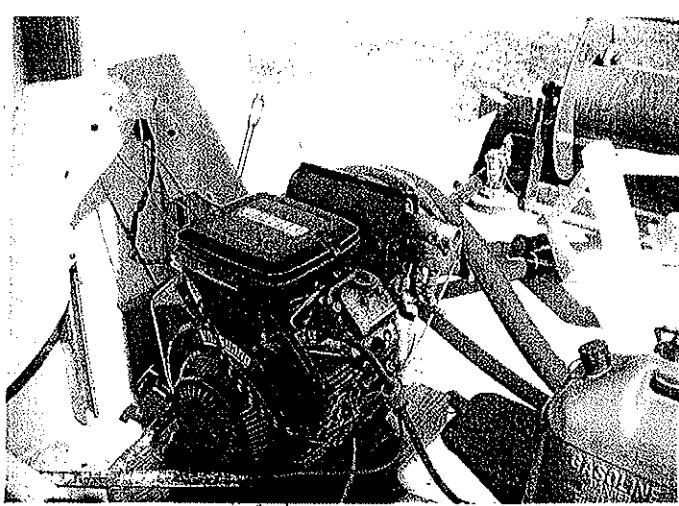


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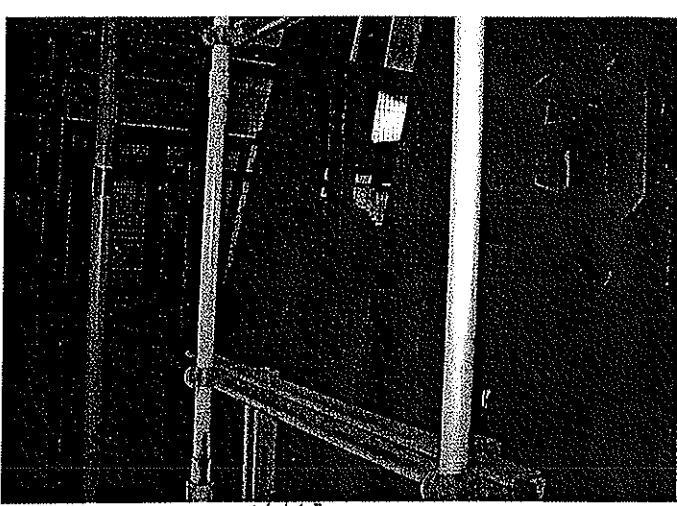


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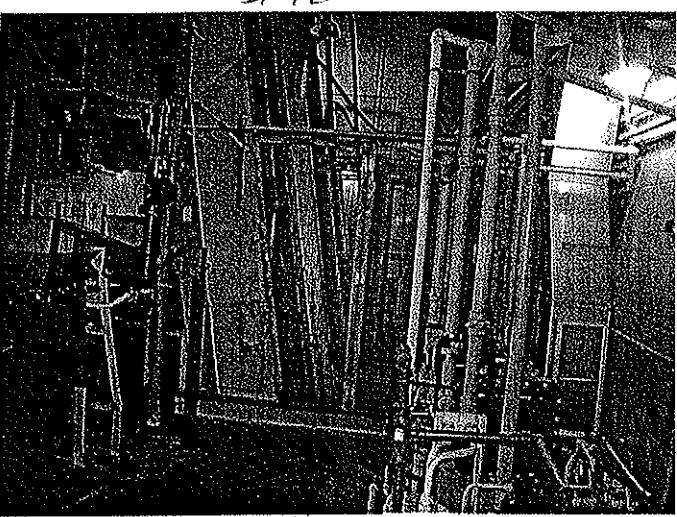
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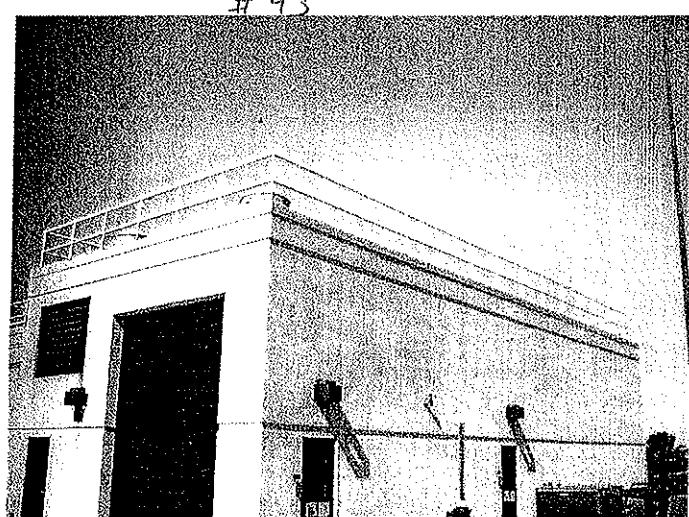
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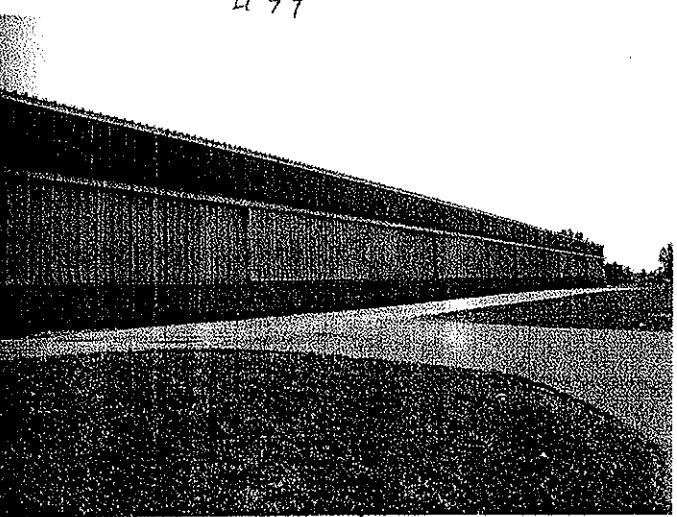
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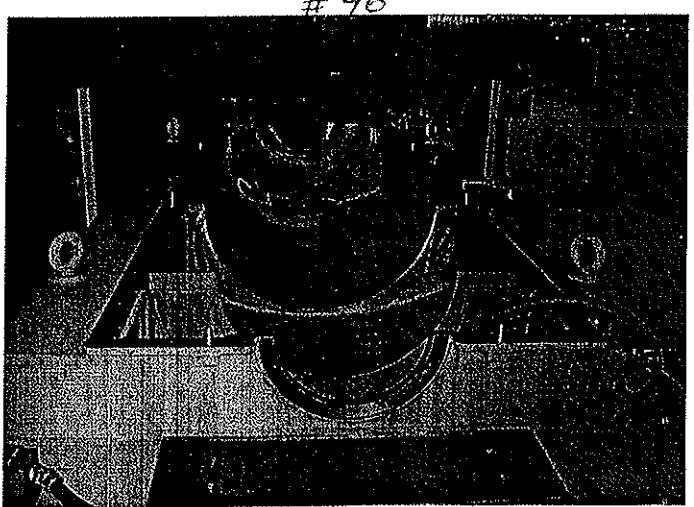
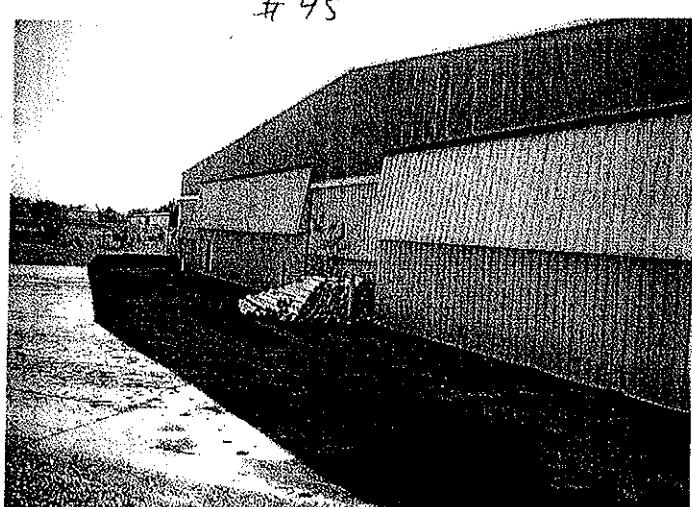
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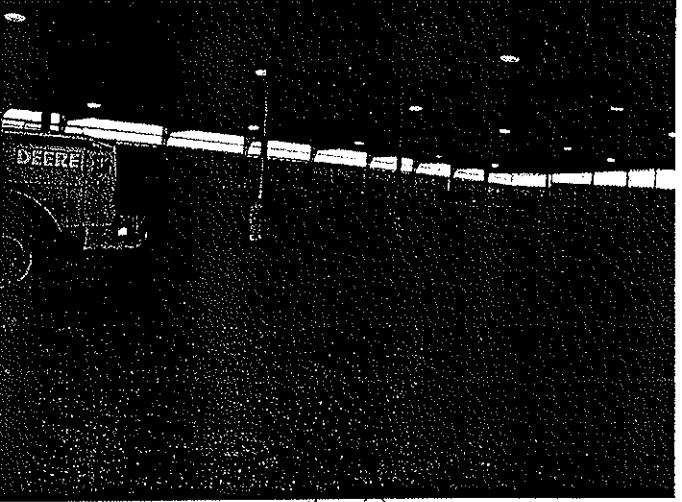
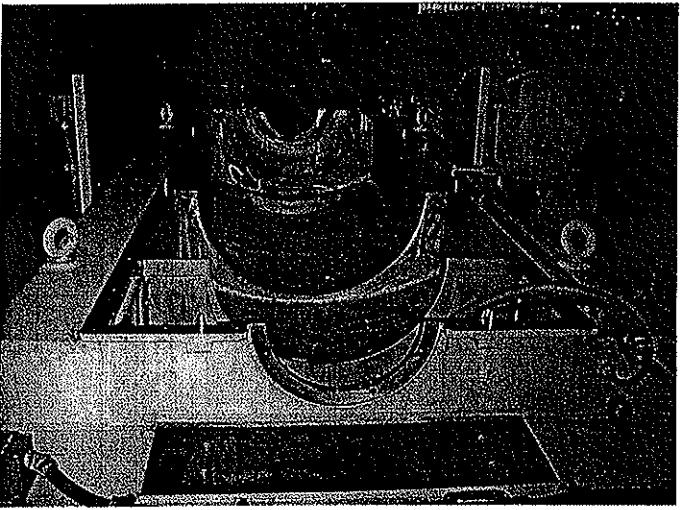
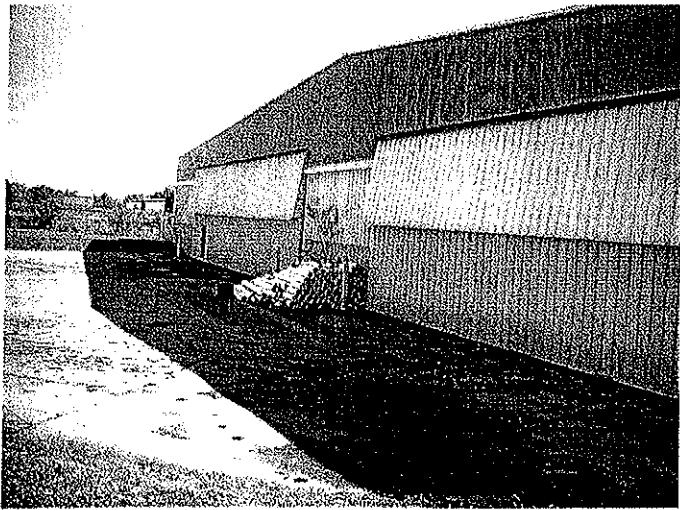
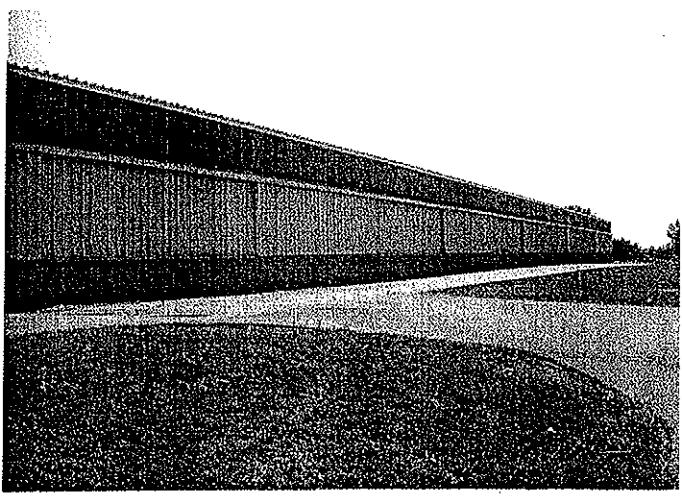


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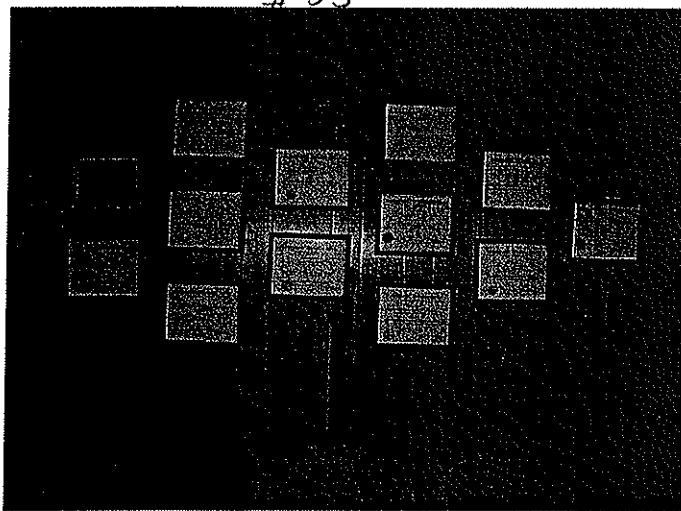




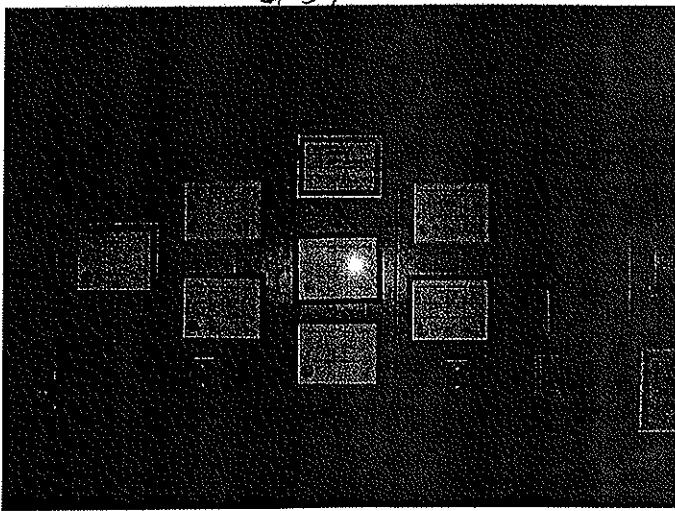
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A. General Information - Collection System Description

Question	Response	Documentation Available
		Yes No
1. Size of service area (acres)	46 sq. miles + 4 min. irrigable .	X
2. Population of service area	142,055 + 13,000 = 165,000	X
3. Number of pump stations	17 + 4 = 21	X
4. Feet (or miles) of sewer	511 miles min. line and longer.	X
5. Age of system (e.g. 30% over 30 years, 20% over 50 years, etc.)	mostly 1970's and newer, almost all. age 25 years.	X

B. Management Information Systems: Performance Indicators

Question	Response	Documentation Available
		Yes No
1. What is the per capita wastewater flow for the maximum month and maximum week or day?	month 6,300 gal/capita (2007) day 339.5 gal/capita	(2007) X avg. 155 gal/day
2. What is the average annual influent BOD?	141 mg/l	X
3. What is the ratio of maximum wet weather flow to average dry weather flow?	2.11 / 1	X

A. General Information - Collection System Description

Question	Response	Documentation Available
1. Size of service area (acres)	46 sq. miles + 4 additional acreage.	Yes No
2. Population of service area	142,055 + 13,000 = 165,000	X
3. Number of pump stations	7 + 4 = 21	X
4. Feet (or miles) of sewer	511 miles min line 6' min and larger.	X
5. Age of system (e.g. 30% over 30 years, 20% over 50 years, etc.)	mostly 1970's and newer, almost all age 25 years.	X

B. Management Information Systems: Performance Indicators

Question	Response	Documentation Available
1. What is the per capita wastewater flow for the maximum month and maximum week or day?	month 4,300 gal / capita (2007) day 339.5 gal / capita	No Yes (2007) Ans (339.5) day X
2. What is the average annual influent BOD?	141 mg/l	X
3. What is the ratio of maximum wet weather flow to average dry weather flow?	2.11 / 1	X

11. Prior to collapse, are structurally deteriorating pipelines being monitored for renewal or replacement?	CIP program TV program (mostly in older areas)	cleaning program	X
12. What is the annual number of mainline sewer cave-ins? What was the cause? (i.e. pipe corrosion, leaks, etc.)	last cave in 1986 0		X
13. What other types of performance indicators does the owner or operator use?	annual cleaning goals CIP program	Annual performance goals	X

C. Continuing Sewer Assessment Plan

Question	Response	Documentation Available
1. Does the collection system experience problems related to I/I? How do these problems manifest themselves? (street flooding, basement flooding, lift station overflows, etc.)	M/H surcharges > minor bcmt backups	Yes No
2. How does the owner or operator prioritize investigations, repairs, and rehabilitation related to I/I?	flow monitoring field inspection (of field personnel.)	X
3. What methods are considered to remedy hydraulic deficiencies?	N/A	X
4. Does the plan include a schedule for investigative activities?	Rehab. plan	X
5. Is the plan regularly updated?	minimum annually some time if needed	X

D. Collection System Management: Communication and Customer Service

Question	Response	Documentation Available
1. Is information provided to residents on clean-up procedures following basement backups and overflows from manholes when they occur?	handout	No
2. Does the owner or operator have a formal procedure in place to evaluate and respond to complaints?	investigate also check history of also site.	Yes
3. What are the common complaints received?	T/V backup in private laterals	X
4. Do customer service records include the following information: G personnel who received the complaint or request, G nature of the complaint or request, G to whom the follow-up action was assigned, G date of the complaint or request, G date the complaint or request was resolved, G customer contact information, G location of the problem, G date the follow-up action was assigned, G cause of the problem, G feedback to customer?	work order program called "City Works"	X
5. How are complaint records documented/maintained? (i.e. computerized, manually logged) Is this information used as the basis for other activities such as routine preventative maintenance?	electronically	X

E. Collection System Management: Management Information Systems

Question	Response	Documentation Available
1. What types of work reports are prepared by the O&M staff?	Sewer Cleaning lift station maint & repair main & repair work orders	Yes No
2. How are records kept?	electronic & paper	X
3. Are records maintained for a period of at least three years?	yes (Some back to 1987)	X
4. Are the records able to distinguish activities taken in response to an overflow event?	yes	X
5. Are there written instructions for managing and tracking the following information: G complaint work orders, G scheduled work orders, G customer service, G scheduled preventative maintenance, G scheduled inspections, G sewer system inventory, G safety incidents, G scheduled monitoring/sampling, G compliance/overflow tracking, G equipment/tools tracking, G parts inventory?	“City works” work management program	X
6.		
7. How often is the management information system updated?	monthly by IT Dept.	X

F. Collection System Management: Sanitary Sewer Overflow (SSO) Notification Program

Question	Response	Documentation Available
1. Do the state agencies, health agencies, regulatory authority, or drinking water purveyors have SSO reporting requirements?	Yes	No
2. Does the owner or operator have standard procedures for notifying state agencies, health agencies, the regulatory authority, and the drinking water purveyor of sanitary sewer overflow (SSO) events?	X	X
3. Are above notification requirements/procedures dependent on the size or location of the overflow? If so, describe.	Yes	X
4. Is there a standard form for recording overflow events? Does it include location, type, receiving water, estimated volume, cause?	Yes	?
5. Which SSOs, identified in section B. 5 of the checklist, were reported by the owner operator?	not reported very minor (only detections)	X
6. Are chronic SSO locations posted?	N/A	X

G. Collection System Management: Legal Authority

Question	Response	Documentation Available
1. Does the collection system receive flow from satellite communities?	Yes	No
2. What is the total area from satellite communities that contribute flow to the collection system? (Acres or square miles)?	4 Sq. miles Warrenville (Population 13,363)	X
3. Does the community have a Sewer Use Ordinance (SUO)?	Yes.	X
4. Does the SUO contain legal authority, procedures and enforcement actions for the following: G maximum volume of flow introduced by satellite communities G fats, oils and grease (FOG), G J/T, building structures over the sewer lines; G storm water connections to sanitary lines; G defects in service laterals located on private property; G sump pump, air conditioner?	Yes	X

H. Collection System Operation: Compliance

Question	Response	Documentation Available
1. Is there a sewer use and a grease ordinance?	Will / DuPage County - grease Sewer / City Party:	Yes X No
2. Is there a process in place for enforcing sewer and grease ordinances?		X
3. Are all grease traps inspected regularly?	DuPage County / Will	X
4. How does owner or operator learn of new or existing/unknown grease traps?	Planning Inspections, New business of business:	X
5. Who is responsible for enforcing the sewer ordinance and grease ordinance? Does this party communicate with the utility department on a regular basis?	Sewer - City Grease - DuPage County / Will	
6. Is there an ordinance dealing with private service laterals?	yes, well documented:	X
7. Is there an ordinance dealing with storm water connections or requirements to remove storm water connections?	yes, etc... Prohibited, downspouts	X

I. Collection System Operation: Water Quality Monitoring

Question	Response	Documentation Available
1. Is there a water quality monitoring program in the area?	Dupage River DO, NH ₃ N & down stream of the treatment plant outlet	Yes No
2. If so, who performs the monitoring?		X
3. How many locations are monitored?	water quality lab & technical specialist downstream.	X
4. What parameters are monitored and how often?	2 Downstream, dissolved oxygen- continuous phosphorus - monthly	X
5. Is water quality monitored after an SSO event?	NO SSO Events. N/A ..	
J. Collection System Operation: Hydrogen Sulfide Monitoring and Control		
Question	Response	Documentation Available
1. Are odors a frequent source of complaint? How many?	No Odors units to control odors at Let Station.	Yes No
2. Are the locations of the frequent odor complaints documented?	N/A - NO complaints.	X

3. Does the collection system owner or operator have a Hydrogen Sulfide problem, and if so, does it have in place corrosion control programs? What are the major elements of the program?	No	X
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K. Collection System Operation: Emergency Preparedness and Response

Question	Response	Documentation Available
1. Does the owner or operator have an emergency response plan (ERP)? A contingency plan?	measures	Yes X No
2. Does this plan take into account vulnerable points in the system, severe natural events, failure of critical system components, vandalism or other third party events, and a root cause analysis protocol?	SCADA	Police / fire - investigations X
3. Are staff trained and drilled to respond to emergency situations?	yes	Call-out list updated weekly X
4. Are responsibilities detailed for all personnel who respond to emergencies?	yes	X
5. Are there emergency operation procedures for equipment and processes?	yes	X

	<i>Well Documents</i>
6. Are the SSO reporting requirements of the state agencies, local health departments, the regulatory authority and drinking water authorities included in the ERP or other document?	Yes
7. Are the standard procedures for notifying state agencies, local health departments, the regulatory authority and drinking water authorities of SSO events included in the ERP or other document?	Yes
8. Does the procedure include an up-to-date list of names, titles, phone numbers, and responsibilities of all personnel involved?	Yes
9. Is there a public notification plan? If so, does it cover both regular business and off hours?	Community Relations Officer,
10. Does the owner or operator have procedures to limit public access to and contact with areas effected by SSOs?	Fire Dept.
11. Does the owner or operator use containment techniques to protect the storm drainage systems?	Fire Dept.
12. Do the overflow records include the following information: G date and time, G causes, G names of effected receiving water(s), G location, G how it was stopped, G any remediation efforts, G estimated flow/volume discharged, G duration of overflow?	Fire Dept. <i>Haz mat Team</i>

13. Does the owner or operator have signage to keep public from the effected area?	<i>However, City crews Keep signs for. Fire Dept.</i>	Fire Dept.	X
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L. Collection Systems Operation: Modeling maintenance projects.

Question	Response	Documentation Available
1. Does the owner or operator have a hydraulic model of the collection system including pump stations? What model is used?	<i>next year - consultant RFP</i>	X

M. Collection System Operation: Engineering - System mapping and As-Built Plans (Record Drawings)

Question	Response	Documentation Available
1. Are "as built" plans (record drawings) or maps available for use by field crews in the office and in the field?	<i>office - electronic & paper field - " "</i>	X
2. Is the mapping tied to a GPS system?	<i>Also Land Top. Soc. Field. GPS.</i>	
3. Do field crews record changes or inaccuracies and is there a process in place to update "as built" plans (record drawings)?	<i>Acc map survey grade equipment.</i>	X

4.	Do the maps show the date the map was drafted and the date of the last revision?	<input checked="" type="checkbox"/>
5.	Do the sewer line maps show the following: G scale, G north arrow, G date the map was drafted, G date of the last revision, G service area boundaries, G property lines, G other landmarks, G manholes and other access points, G location of building laterals, G street names, G SSOs/CSOs, G flow monitors, G force mains, G pump stations, G lined sewers, G main, trunk and interceptor sewers, G assessment lines and dimensions, G pipe material, G pipe diameter, G installation date, G slope, G manhole elevations, G manhole coordinates, G manhole invert elevations, G distance between manholes?	<input checked="" type="checkbox"/> yes can be made available
6.	Are the following sewer attributes recorded: G size, G shape, G invert elevation, G material, G separate/combined sewer, G installation date?	<input checked="" type="checkbox"/> available
7.	Are the following manhole attributes recorded: G shape, 8. G type, G depth, G age, G material?	<input checked="" type="checkbox"/> Age of Collection System ~ 25 yrs.
9.	Is there a systematic numbering and identification method/system established to identify sewer system manholes, sewer lines, and other items (pump stations, etc.)?	<input checked="" type="checkbox"/> manholes have # by Basin: available

N. Collection System Operation: Engineering - Design

Question	Response	Documentation Available
1. Is there a document which details design criteria and standard construction details?	Yes	No
2. Are O&M staff involved in the design review process?	Yes <i>Civic Engineering CEC</i>	X
3. Does the owner or operator have documentation on private service lateral design and inspection standards?	Yes <i>1.e. Pump stations. Transport Engineering & Development Dept.</i>	X
4. Does the owner or operator attempt to standardize equipment and sewer system components?	Yes	X

O. Collection System Operation: Engineering - Capacity

Question	Response	Documentation Available
1. What procedures are used in determining whether the capacity of existing gravity sewer system, pump stations and force mains are adequate for new connections?	TEPA guidelines <i>CEC</i>	X

P. Collection System Operation: Pump Station Operation

Question	Response	Documentation Available
1. How many pump stations are in the system? How many have back-up power sources?	21 ↑	Yes No 20 backup power (Hydronic Diesel)
2. How many pump stations are in the system? How many have back-up power sources?		X
3. Are enough trained personnel assigned to properly maintain pump stations?	Yes	X
4. Are the lead, lag and back-up pumps rotated regularly?	Yes	X

Q. Collection System Operation: Pump Stations - Inspection

Question	Response	Documentation Available
1. How often are pump stations inspected?	weekly/monthly Checks	Yes No X
2. What work is accomplished during inspections?	on sheet	X
3. Is there a checklist?	yes	X

4.	Are records maintained for each inspection?	Yes	X
5.	Are there Standard Operating Procedures (SOPs) and Standard Maintenance Procedures (SMPs) for each station?	Yes	X

R. Collection System Operation: Pump Stations - Emergencies

Question	Response	Documentation Available	
		Yes	No
1. Is there an emergency Operating Procedure for each pump station?	book	X	
2. Is there sufficient redundancy of equipment in all pump stations?	SW - adding 3rd pump next year At Springbrook Station	X	
3. Who responds to lift station failures and overflows? How are they notified?	LS crew SCADA	24/7 Springbrook Dispatch	X
4. How is the loss of power at a station dealt with? (i.e. on-site electrical generators, alternate power source, portable electric generator(s))?	on-site generators	X	
5. What equipment is available for pump station bypass?	2 - 4" pumps 1 - 6" pump	1 - 8" pump	X
6. What process is used to investigate the cause of pump station failure and take necessary action to prevent future failures?	SCADA	field inspections by City crews & contractor	X

S. Collection System Operation: Pump Stations - Emergency Response Monitoring

Question	Response	Documentation Available
1. How are pump stations monitored?	SCADA field checks	X

T. Collection System Operation: Pump Stations - Record Keeping

Question	Response	Documentation Available
1. Are operations logs maintained for all pump stations?	file	X
2. Are manufacturer's specifications and equipment manuals available for all equipment?	file	X
3. Are pump run times maintained for all pumps?	SCADA	X
4. Are elapsed time meters used to assess performance?	SCADA	X

U. Collection System Operation: Pump Stations - Force Mains and Air/Vacuum Valves

Question	Response	Documentation Available
1. Does the owner or operator regularly inspect the route of force mains?	TV / PHT inspections	Yes No
2. Does the owner or operator have a program to regularly assess force main condition?	TV	X
3. Is there a process in place to investigate the cause of force main failures?	Visual / TV	X
4. Does the owner or operator have a regular maintenance/inspection program for air/vacuum valves?	Cityworks Work Order System	X
5. Have force main failures been caused by water hammer?	No	X

V. Equipment and Collection system Maintenance: Planned Maintenance

Question	Response	Documentation Available
1. Are preventive maintenance tasks and frequencies established for all pump stations and equipment?	PM Schedule	X

2. Is there a formal procedure to repair or replace pump stations and equipment when useful life is reached?	CIP layout plan	X
3. Are there Standard Maintenance Procedures (SMPs) for each pump station?	PMS Schedule	X

W. Equipment and Collection System Maintenance: Maintenance Scheduling

Question	Response	Documentation Available
1. Does the owner or operator plan and schedule preventative and corrective maintenance activities?	PMS	Yes
2. Is there an established priority system? Who sets priorities for maintenance?	mgt. / staff	X
3. Is a maintenance card or record kept for each piece of mechanical equipment within the collection system?	yes	X
4. Do equipment maintenance records include the following information: G Maintenance recommendations. G instructions on conducting the specific maintenance activity, G other observations on the equipment, G maintenance schedule, G a record of maintenance on the equipment to date?	yes	X
5. Are dated tags used to show out-of-service equipment?	lockout / tagout program	X
6. Is maintenance backlog tracked?	N/A no back log	

7. How is O&M performance tracked and measured?	City works / Crystal Reports	X
8. What percent of repair funds are spent on emergency repairs?	Very small (2002)	
9. Are maintenance logs maintained for all pump stations?	On file	X

X. Equipment and Collection System Maintenance: Sewer Cleaning

Question	Response	Documentation Available
1. Is there a routine schedule for cleaning sewer lines on a system wide basis?	PMS	No
2. What percent of the sewer lines are cleaned, even high/repeat cleaning trouble spots, during the past year?	50% min 4 yrs. all sections.	X
3. Is there a program to identify sewer line segments that have chronic problems and should be cleaned on a more frequent schedule?	PMS field crew feedback	X
4. What is the average number of stoppages experienced per mile of sewer pipe per year?	0	X
5. Has the number of stoppages increased, decreased or stayed the same over the past five years?	Same	X
6. Are stoppages diagnosed to determine the cause?	TV	X

7. Are stoppages plotted on maps and correlated with other data such as pipe size and material, or location?		N/A
8. Do the sewer cleaning records include the following information: G date and time, G cause of stoppage, G method of cleaning, location of stoppage or routine cleaning activity, G identity of cleaning crew, G further actions necessary initiated?	flushing report	X
9. If sewer cleaning is done by a contractor, are videos taken of before and after cleaning?	Spote TVings	X

Y. Equipment and Collection System Maintenance: Sewer Cleaning - Chemical Cleaning and Root Removal

Question	Response	Documentation Available
1. Does the owner or operator have a root control program?	mechanical	X
2. Does the owner or operator have a FOG program?	NO	Dupage County Health Dept.
3. Are chemical cleaners used?	NO	

Z. Equipment and Collection System Maintenance: Parts Inventory

Question	Response	Documentation Available

1. Have critical spare parts been identified?	on trucks / at stations	X
2. Is there a parts standardization policy in place?	pumps / controllers / VFD / air release	X

AA. Equipment and Collection System Maintenance: Equipment and Tools Management

Question	Response	Documentation Available
1. Does the owner or operator own or have access to portable generators?	rentals if needed	X
2. Is a detailed equipment maintenance log kept?		X

BB. Sewer System Capacity Evaluation (SSES): Internal TV Inspection

Question	Response	Documentation Available
1. Does the owner or operator use internal T.V. inspection? If so, please describe the program?	T/V	X
2. Does the internal T.V. record logs include the following: G pipe size type, length, and joint spacing; G distance recorded by internal T.V.; G results of the internal T.V. inspection; G internal T.V. operator name; G cleanliness of the line; G location of the line being televised by manholes?	Yes	X

3. Is a rating system used to determine the severity of the defects found during the inspection process?	Yes - on T.V report	X
4. Is there documentation explaining the codes used for internal T.V. results reported?	Yes	X
5. Approximately what percent of the total defects determined by T.V. inspection during the last 5 years were corrected by in-line patching, disconnections, line replacements, cleaning, resurfacing, grouting or slip-lining?	98%	X
6. Are main line and lateral repairs checked by internal T.V. inspection after the repair(s) have been made?	Yes	X

CC. SSES: Survey and Rehabilitation (general)

Question	Response	Documentation Available
1. Have SSESS's been performed in the past? If so, documentation available?	Yes	Yes No
2. Do the SSESS reports include recommendations for rehabilitation, replacement, and repair?	Yes	X
3. Were defects identified in the SSESS repaired?	Yes	X
4. Has the owner or operator established schedules for performing recommended rehabilitation, both short term and long term?	Yes	X

5. has funding been approved for the recommended rehabilitation?	Yes	CIP	X
6. Is post rehabilitation flow monitoring used to access the success of the rehabilitation?	Yes	map / report	X

DD. SSES: Flow Monitoring

Question	Response		Documentation Available
	Yes	No	
1. Does the owner or operator have a flow monitoring program? If so, please describe.	Yes 25 permanent 10 portable	X	
2. Does the owner or operator have a comprehensive capacity assessment and planning program?	CERC IT&T consultant - modeling	X	
3. Are flows measured prior to allowing new connections?	No		
4. What is the ratio of peak wet weather flow to average dry weather flow at the wastewater treatment plant?	2006 & 2007 data 2.11 / 1	X	
5. Does the owner or operator have any wet weather capacity problems?	No	X	
6. Are low points or floodplain areas monitored during rain events?	Yes	Emergency plan	X
7. Does the owner or operator have any dry weather capacity problems?	No	X	

EE. SSES: Smoke Testing and Dyed Water Flooding

Question	Response	Documentation Available
1. Does the owner or operator have a smoke testing problem to identify sources of inflow and infiltration into the system including private service laterals and illegal connections? If so, please describe.	NO Smoke Testing Marts TV.	Yes No
2. What follow-up occurs as a result of positive results for smoke or dye testing?	N/A	X

FF. SSES: Manhole Inspection

Question	Response	Documentation Available
1. Does the owner or operator have a routine manhole inspection and assessment program?	Yes	Yes No
2. What is the purpose of the inspection program?	IT and structures	X
3. Does the owner or operator have a goal for the number of manholes inspected annually?	NO Rehns ~ 250 manholes	X
4. How many manholes were inspected during the past year?	2006 - 74 (low #)	X

12,783 manholes in collection system.

	X		
5. Do the records for manhole/pipe inspection include the following: G conditions of the frame and cover; G evidence of surcharge, offsets, or misalignments; G atmospheric hazards measurements; G details on the root cause of cracks or breaks in the manhole or pipe including blockages; G recording conditions of corbel, walls, bench, trough, and pipe seals; G presence of corrosion, if repair is necessary; G manhole identifying number/location; wastewater flow characteristics; G accumulations of grease, debris, or grit; G presence of infiltration, location, and estimated quantity; G inflow from manhole covers?	form		
6. What records are kept for tracking manhole inspection activities?	Paper files → Cityworks	X	
7. What triggers whether a manhole needs rehabilitation?	- focus areas - inspections	X	
8. How are priorities established for rehabilitation, replacement and repair of manholes?	- focus areas - inspections → condition of MH	X	
9. Has the owner or operator established schedules for performing rehabilitation, both short term and long term of manholes?	Yes - Rehab plan	X	

GG. Rehabilitation: Manhole Repairs

Question	Response	Documentation Available
1. What rehabilitation techniques are used for manhole repairs?	workorder task list	Yes
2. How are priorities determined for manhole repairs?	focus area / M+ condition	X
3. What type of documentation is kept?	work orders / city works	X

HH. Rehabilitation: Mainline Sewers

Question	Response	Documentation Available
1. What type of main line repairs has the owner or operator used in the past?	CIPP lining spot CIPP open cut	X

Sing Reclamation pond (North wastewater
treatment
Lagoon)

Decommissioned SDR in 1976

Em

South western C.R. (5' min
~7' max flow
8' mid)
5.5 mi. (Holding capacity).

Last used Oct 2005

$$r_{min} = 1.23\sqrt{H^2}$$